Security & Emergency Preparedness for Water Systems

A Training Toolbox presentation developed by MDEQ
Why are we concerned about security of our Drinking Water?

- Hazards or threats can prevent a utility from being able to provide a safe and reliable supply of water to consumers.

**Hazard**
Any individual, group, or event that could:
- Destroy the facility,
- Halt or disrupt operations/service,
- Threaten public health,
- Harm employees,
- Publicly embarrass a utility,
- Require a great deal of time and/or money to respond,
- Cause a general panic/distrust.
Hazards or Threats to Utilities

- Natural Disasters
- Man-Made Events

Cause ...
- Physical Damage
- Contamination Event
- Loss of staff
- ...

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Hazards or Threats to Utilities

Natural Disasters
- Earthquakes
- Floods
- Wind, ice, snow storms
- Wild fires
- Tornado
- Volcanic eruption
- Pandemic health event

Man-Made Events
- Terrorism
- Cyber Hacking
- Vandalism
- Accidents
- Fire
- Threats, warnings, or hoaxes

Consequences
- Physical damage to system
- Contamination of water
  - Chemical, biological, radiological
- Loss of staff
  - Injured or unavailable
Tools to Minimize Threats

- Vulnerability Assessments (VA)
- Physical Security and Hardening of Facilities
- Emergency Response Plans (ERP)
- National Infrastructure Protection Plan
- Incident Command System/National Incident Management System
- Montana Water/Wastewater Agency Response Network (MT WARN)
- Partners and Contacts
- Other Resources
Vulnerability Assessment (VA)

- Process of identifying, quantifying, and prioritizing system vulnerabilities
- Focuses on types of plausible possible threats
- Facility by facility evaluation of the system and its operations that are at risk
- Use findings to prioritize security upgrades and operation changes to reduce risks
- Include vulnerabilities in Emergency Response Plan (ERP).
Physical Security and Hardening of Facilities

- Security Design
  - Threat Identification
  - Vulnerability Assessment
  - Water Infrastructure Security
  - Enhancements (WISE) Documents

Example
Access control: perimeter detection, fences, alarms, locks, barricades...
Creative Physical Security

Photos courtesy of Mountain Water
Emergency Response Plan

- Written plan with thought-out actions to respond to emergencies of all types
- Makes use of system’s Vulnerability Assessment by addressing possible consequences of vulnerabilities

Emergency Response Plan (ERP)

- Presents clear and logical steps to take
- Designates roles and responsibilities
- Identifies essential contacts and partners
- Important to train and exercise with
- Assists in effective coordination with first responders, law enforcement, and health officials
- Needs to be frequently updated
Emergency Response Plan

- Eight Core Elements
  - System Specific Information (such as maps, “as-built” drawings, operations manuals, SOPs, etc.)
  - System Roles and Responsibilities, (including chain of command and contact information)
  - Communication Procedures – Who, What, and When
  - Personnel Safety
  - Identification of Alternative Water Sources
  - Replacement Equipment and Chemical Supplies
  - Property Protection
  - Water Sampling
Emergency Response Plan

- Training, Exercises, and Drills
  - Regularly practice implementing the ERP
  - Orientation exercises
  - Table-top workshops
  - Functional exercises
  - Full-scale drills
Security Regulations

- **Public Health Security and Bioterrorism Preparedness and Response Act of 2002**
  - CWS serving more than 3,300 people are required to conduct a vulnerability assessment and prepare an Emergency Response Plan

- **USDA – Rural Development funded projects**
  - All funded systems must complete a VA and ERP and update them every three years

- **Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) or (SARA Title III).**
  - Purpose is to encourage and support emergency planning efforts and to provide the public and local governments with information concerning potential chemical hazards present in their communities.

- **MT DEQ and the State of Montana**
  - Strongly encourage all PWS to have a current VA and ERP.
FEDERAL OFFENSE

US CODE Title 42, Section 300i-1
(a) Tampering
(b) Attempt or threat
(c) Civil penalty
(d) “Tamper” defined -For purposes of this section, the term “tamper” means-
   (1) to introduce a contaminant into a public water system with the intention of harming persons; or
   (2) to otherwise interfere with the operation of a public water system with the intention of harming persons.
National Infrastructure Protection Plan

- Developed by the Department of Homeland Security

National Infrastructure Protection Plan
Partnering to enhance protection and resiliency
2009
National Infrastructure Protection Plan

Goal: To protect and ensure the continuity of the critical infrastructure and key resources of the U.S.

Objectives:

- Understanding and sharing information about terrorist threats and other hazards with CIKR partners;
- Building partnerships to share information and implement CIKR protection programs;
- Implementing a long-term risk management program;
- Maximizing the efficient use of resources for CIKR protection, restoration, and recovery.
National Infrastructure Protection Plan

18 Critical Infrastructure and Key Resources Sectors defined

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Water Sector-Specific Plan

- Four goals and objectives:
  - Sustain protection of public health & environmental
  - Recognize & reduce risks
  - Maintain a resilient infrastructure
  - Increase communication, outreach, and public confidence.
National Incident Management System

- Federal Emergency Management Agency (FEMA)
- Federal preparedness funding contingent upon full NIMS compliance
National Incident Management System

- A system to coordinate emergency preparedness and incident management among various federal, state, and local agencies.
- Standard organizational structure for all domestic incidents regardless of cause, size, location, or complexity.
- NIMS is not an operational incident management or resource allocation plan.
National Incident Management System

**NIMS**
- Represents a core set of doctrines, concepts, principles, terminology, and organizational processes that enables effective, efficient, and collaborative incident management.

**Incident Command System (ICS)**
- Consists of a standard management hierarchy and procedures for managing incident's of any size.
- Purpose: enabling incident managers to identify the key concerns associated with the incident—often under urgent conditions—without sacrificing attention to any component of managing the incident and the participants.
MT WARN: Montana Water/Wastewater Agency Response Network

- Established by Montana Water and Wastewater Critical Infrastructure Committee & Utilities
- “Utilities helping utilities” approach to providing mutual aid assistance during times of crisis
- Member utilities send valuable aid in a quick and efficient manner
- Free and voluntary program

www.mtwarn.org
Partners and Contacts

- Local police
- Co. and State Disaster and Emergency Services
- Fire departments
- Public health officials
- Local Emergency Planning Committees (LEPCs)
- Local government/city managers
- State and federal agencies
- Nearby water utilities
- Health care providers
- Equipment and chemical suppliers
- News and public announcement media
Tools and Resources

- EPA’s Water Security Website
  http://epa.gov/safewater/watersecurity

- Water Infrastructure Security Enhancement (WISE)
  http://www.wef.org/AWK/page.aspx?id=3588&ekmensel=c57dfa7b_96_0_3588_6

- EPA, Local Emergency Planning Committee
  http://yosemite.epa.gov/oswer/lepcdb.nsf/HomePage?openForm
Tools and Resources

- Department of Homeland Security, NIPP
  http://www.dhs.gov/nipp

- Federal Emergency Management Association (FEMA), NIMS/ICS
  http://www.fema.gov/nims

- Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA)
  http://en.wikipedia.org/wiki/Emergency_Planning_and_Community_Right-to-Know_Act
Tools and Resources

- MT Disaster and Emergency Services
  http://dma.mt.gov/des/ and (406)841-3911
- Statewide MT WARN Network
  http://www.mtwarn.org
- MT DEQ PWS Security website
  http://www.deq.mt.gov/wqinfo/pws/securitylinks.mcpx
Questions?

- How would your community get along without water for days to weeks?
- Who would you call for help? Are phone lines working?
- Are you ready to notify the public with what precautions they should take with their drinking water?
- Do you have procedures for criminal events and sampling concerns?
- Are your employees available and their families taken care of?
- Do you have Memorandum of Understanding (MOUs) with suppliers?
- Do you have a relationship with your responders in your community?
- Are you prepared?
- …